

REMARKS/ARGUMENTS**1. Request for Continued Examination:**

5 The applicant respectfully requests continued examination of the above-indicated application as per 37 CFR 1.114. The amendments made to the claims in the above section are over the last entered amendment filed August 15, 2006.

2. Amendment to the specification:

The title of the present invention has been amended due to incorrect spelling.
10 No new matter is added.

3. Rejection of Claims 1-5, 9-16, 20-24, 58, and 59 under 35 U.S.C. 102(b) as being anticipated by admitted prior art.

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Claim 1 has been amended to overcome this rejection. The amended claim 1 recites a metal layer structure having a substrate, a first dielectric layer disposed on the substrate, at least a metal structure disposed in the first dielectric layer, a second dielectric layer disposed on the first dielectric layer and the metal structure, at least a
20 first conductor and a second conductor disposed on the first dielectric layer, and at least a conductive plug disposed in the second dielectric layer for connecting the first conductor, the second conductor, and the metal structure. Specifically, the second conductor includes at least one thin portion, in which the thickness of the thin portion is less than the thickness of the first conductor.

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Despite the fact that the prior art of the claimed invention discloses a metal layer structure having a first dielectric layer formed on a substrate and at least a first conductor and a second conductor disposed on the first dielectric layer, the prior art does not teach the second conductor having at least one thin portion that has a
30 thickness less than the thickness of the first conductor. Applicant asserts that by providing a comparison between the thickness of the thin portion and the thickness of

the first conductor, the thin portion disclosed in the present invention is now clearly defined.

Since the thin portion is absent in the prior art, applicant asserts that the metal
5 layer structure disclosed by the prior art of the claimed invention is significantly
different from the metal layer structure of the present invention. Reconsideration of
the amended claim 1 is respectfully requested. As claims 2-5, 9-13, and 58 are
dependent upon the amended claim 1, applicant asserts that if claim 1 is found
allowable, claims 2-5, 9-13, and 58 should additionally be found allowable.
10 Reconsideration of the claims 2-5, 9-13 and 58 is politely requested.

Claim 14 has been amended to fully incorporate the limitation disclosed in claim
15 15 for overcoming this rejection. The amended claim 14 recites a metal layer
structure having a substrate, a first dielectric layer disposed on the substrate, at least a
metal structure disposed in the first dielectric layer, a second dielectric layer disposed
on the first dielectric layer and the metal structure, at least a first conductor and a
second conductor disposed on the first dielectric layer, and at least a conductive plug
disposed in the second dielectric layer for connecting the first conductor, the second
conductor, and the metal structure. Preferably, the first conductor has a first
20 thickness and the second conductor has a second thickness and a third thickness, in
which the first thickness, the second thickness, and the third thickness impart different
functions to the first conductor and second conductor respectively.

Despite the fact that the prior art of the present invention discloses a metal layer
25 structure having a first dielectric layer formed on a substrate and at least a first
conductor and a second conductor disposed on the first dielectric layer, the prior art
does not teach the second conductor having a second thickness and a third thickness.
Inspection of Fig. 1 of the prior art will reveal that the second conductor has only one
thickness, in which the thickness of the second conductor is equivalent to the
30 thickness of the first conductor.

Since the feature of the second conductor having a second thickness and a third

thickness is absent in the prior of the present invention, applicant asserts that the metal layer structure disclosed by the prior art is significantly different from the metal layer structure of the claimed invention. Reconsideration of the amended claim 14 is respectfully requested. As claims 15-16, 20-24, and 59 are dependent upon amended
5 claim 14, applicant asserts that if claim 14 is found allowable, claims 15-16, 20-24, and 59 should additionally be found allowable. Reconsideration of claims 15-16, 20-24 and 59 is politely requested.

10 **4. Rejection of Claims 6, 7, 17, 18, 25-29, 31-40, 42-57, and 60-62 under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of U.S. Patent No. 6,900,515 to Fisher et al.**

Applicant asserts that Fisher et al do not teach a fuse structure as per the
15 limitation disclosed in claim 25 of the present invention. Claim 25 of the present invention recites a fuse structure including a substrate having a bonding area and a fuse area, a first dielectric disposed on the substrate, at least a metal structure disposed in the first dielectric layer, a second dielectric layer disposed on the first dielectric layer and the metal structure, at least a first conductor and a second conductor
20 disposed on the first dielectric layer, and at least a conductive plug disposed in the second dielectric layer for connecting the first conductor, the second conductor, and the metal structure. Specifically, the first conductor having a first thickness is utilized as a bonding pad and the second conductor having a second thickness smaller than the first thickness is used as a fuse.

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Inspection of Fig. 5 of cited reference will reveal that Fisher et al disclose a fuse structure 40 having a fusible link 44 and conductive lines 42a and 42b attached to two ends of the fusible link. Nevertheless, applicant asserts that Fisher et al only teach the width of the fusible link and the conductive lines but does not suggest the
30 thickness of the fuse structure. In other words, Fig. 5 of the cited reference is a top view of a typical fuse structure, in which the figure only displays the width of the fuse structure but does not reveal the thickness of the fuse structure.

Additionally, applicant asserts that the fusible link 44 and the conductive lines 42a and 42b disclosed in Fig. 5 of the cited reference all correspond to the second conductor of the claimed invention. Hence, applicants asserts that Fisher et al in Fig. 5 of the cited reference only disclose a second conductor disposed in the fuse area but does not suggest any first conductor formed in the bonding area of the substrate. Since the first conductor formed in the bonding area of the substrate is absent in the cited reference, applicant asserts that Fisher et al do not teach the fuse structure as per the limitation disclosed in claim 25 of the present invention and thus cannot be combined with the admitted prior art of the present invention in the manner suggested. Reconsideration of claim 25 is respectfully requested. As claims 26-29, 31-35 and 60 are dependent upon claim 25, applicant asserts that if claim 25 is found allowable, claims 26-29, 31-35, and 60 should additionally be found allowable. Reconsideration of claims 26-29, 31-35, and 60 is politely requested.

Applicant asserts that Fisher do not teach a fuse structure as per the limitation disclosed in claim 36 of the present invention. Claim 36 of the present invention recites a fuse structure having a substrate, a first dielectric layer disposed on the substrate, at least a metal structure disposed in the first dielectric layer, a second dielectric layer disposed on the first dielectric layer and the metal structure, at least a fuse having a thin portion and a thick portion disposed on the second dielectric layer, at least a conductive plug disposed in the second dielectric layer for connecting the fuse and the metal structure, a third dielectric layer disposed on the second dielectric layer and covering the thick portion of the fuse, and a first opening formed in the third dielectric layer for exposing the thin portion.

Inspection of Fig. 5 of cited reference will reveal that Fisher et al disclose a fuse structure 40 having a fusible link 44 and conductive lines 42a and 42b attached to two ends of the fusible link. Nevertheless, applicant asserts that Fisher et al only teach the width of the fusible link and the conductive lines but does not suggest the thickness of the fuse structure. In other words, Fig. 5 of the cited reference is a top view of a typical fuse structure, in which the figure only displays the width of the fuse

structure but does not reveal the thickness of the fuse structure.

In addition to the top view of the fuse structure disclosed in Fig. 5 of the cited reference, Fisher et al in Fig. 1 also disclose a cross sectional view of the fuse link.

5 Inspection of Fig. 1 of the cited reference will reveal that the surface of the cross section of the fuse structure is completely flat, such that no thin portion or thick portion is revealed in the figure. In other words, Fisher et al fail to teach a fuse having a thin portion and a thick portion, as disclosed in claim 36 of the present invention.

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Since the feature regarding the fuse having a thin portion and a thick portion is absent in the cited reference, applicant asserts that the fuse structure disclosed by Fisher et al cannot be combined with the admitted prior art of the present invention. Reconsideration of claim 36 is respectfully requested. As claims 37-40, 42-46, and 15 61 are dependent upon claim 36, applicant asserts that if claim 36 is found allowable, claims 37-40, 42-46, and 61 should additionally be found allowable. Reconsideration of claims 37-40, 42-46, and 61 is politely requested.

Applicant asserts that Fisher et al do not teach a metal layer structure as per the 20 limitation disclosed in claim 47 of the present invention. Claim 47 recites a metal layer structure having a substrate, a first dielectric layer disposed on the substrate, at least a metal structure disposed in the first dielectric layer, a second dielectric layer disposed on the first dielectric layer and the metal structure, at least a first conductor and a second conductor disposed on the first dielectric layer, and at least a conductive 25 plug disposed in the second dielectric layer for connecting the first conductor, the second conductor, and the metal structure. Preferably, the first conductive having a first thickness is composed of a first material and the second conductor having a second thickness different from the first thickness is composed of a second material.

30 Inspection of Fig. 5 of cited reference will reveal that Fisher et al disclose a fuse structure 40 having a fusible link 44 and conductive lines 42a and 42b attached to two ends of the fusible link. Nevertheless, applicant asserts that Fisher et al only teach

the width of the fusible link and the conductive lines but does not suggest the thickness of the fuse structure. In other words, Fig. 5 of the cited reference is a top view of a typical fuse structure, in which the figure only displays the width of the fuse structure but does not reveal the thickness of the fuse structure.

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Additionally, applicant asserts that the fusible link 44 and the conductive lines 42a and 42b disclosed in Fig. 5 of the cited reference all correspond to the second conductor of the claimed invention. Due to the fact that the fusible link 44 and the conductive lines 42a and 42b are all part of the fuse, applicants asserts that Fisher et al in Fig. 5 of the cited reference only teach the second conductor of the claimed invention but do not suggest the first conductor of the claimed invention. Since the first conductor is absent in the cited reference, applicant asserts that the relationship between the first conductor having a first thickness and the second conductor having a second thickness is also absent in the cited reference.

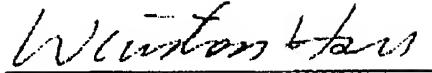
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In light of the above, applicant asserts that Fisher et al do not teach the metal layer structure as per the limitation disclosed in claim 47 of the present invention and thus cannot be combined with the admitted prior art of the present invention in the manner suggested. Reconsideration of claim 47 is respectfully requested. As claims 48-57 and 62 are dependent upon claim 47, applicant asserts that if claim 47 is found allowable, claims 48-57 and 62 should additionally be found allowable. Reconsideration of claims 48-57 and 62 is politely requested.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,



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- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)